

REMARKS

In the Office Action of December 19, 2005 (hereinafter, "Office Action"), the disclosure was objected to because of a phrase on page 1 being repeated on page 2. Please note the "Specification Amendments" section at the end of this document, which includes a correction, as well as other minor corrections. No new matter was added with the specification amendments.

One specification amendment replaced the phrase "A rim 34, known also as the bead of the tire, surrounds the opening 32 of the tire." with the phrase "A bead 34, to be disposed against a rim (not shown), surrounds the opening 32 of the tire." The bead of the tire is well understood as "a round hoop of steel wires, wrapped or reinforced by steel cords, placed at the very inside of the tire's diameter" (Tire Terminology, www.discounttire.com). Figure 3 of Applicants' specification, showing a bead 34, is consistent with this definition. The rim is "the portion of the wheel that a tire is mounted onto" (Glossary, www.ntb.com). Rim is also defined as "the component that supports the tire and contains the inflation pressure" (Glossary, www.retread.org). Other references to the term "rim" in the specification are consistent with these well-known meanings (see page 5, line 3 and page 9, line 12). No new matter was added with this specification amendment.

In the Office Action, claim 18 was objected to as failing to further limit the subject matter of a previous claim. Please note that claim 18 has been amended, as has claim 1, in the "Claim Amendments" section at the end of this document. Claim 18 now recites, "wherein the flattening of the sides of the base portion against the tire seals the tire against the base portion". The claim language "seals the tire against the base portion" recites structure that further limits the tire storage system. No new matter was added with the claim amendments.

Claim Rejections

In the Office Action, claims 1 – 5, 14, 17, and 18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas, U.S. Patent No. 4,893,713 (hereinafter, "Thomas") in view of Hulet U.S. Patent No. 5,033,621 (hereinafter, "Hulet"). In view of the amendment to claim 1, Applicants respectfully disagree.

Please note that claim 1 has been amended. The elements of claim 1 are most readily identified by reviewing Figures 2 and 3 of Applicants' specification. Claim 1 recites, "a spacer" and "two identical tire caps." The description of the tire caps has not been amended; the description of the spacer has been amended. As depicted in Figure 2 and described in the specification, "the spacer 40 is insertable into an opening 32 of the tire 30 (see also Figure 3) (page 4, lines 24 – 25). Looking at Figure 3, it is particularly evident that the spacer 40 occupies a substantial portion of the tire opening, substantial enough that the spacer and the rim could not occupy the opening simultaneously. Along with the top portion 52 of the bottom tire cap, the spacer 40 "replaces" the rim, not in function, but in filling the space, described in the specification as the opening 32, which was either formerly occupied by or intended for the rim. Accordingly, amended claim 1 recites, "the opening being a cavity to dispose a rim of the tire, the rim being absent from the opening".

As amended, claim 1 is not obvious over Thomas in view of Hulet. Thomas discloses a "protector pallet for aircraft wheel assemblies" in which the wheel assembly 12 includes an upper protective member 14 and a lower protective member 14, which surround the rim 18 and hub 20 of the tire (Figure 2). Thomas discloses, "[t]he wheel assembly itself includes a rim 18 and a hub 20" (col. 4, lines 19 – 20). After describing the wheel assembly 12 in some detail, including a reference to the rim 18, hub 20, central bore 22, annular cavity 24, tire 28, sidewall 29, tire beads 30, and describing generally the wheel assembly (col. 4, lines 19 – 51), Thomas discloses "[t]he protector itself will now be described in detail." This statement indicates that the Thomas protector is

used with the rim, hub, and other portions of the wheel assembly intact. Thus, the additional claim language in Applicants' claim 1, "the opening being a cavity to dispose a rim of the tire, the rim being absent from the opening" does not read on Thomas.

The Thomas protector is to be "mounted on the wheel assembly" (col. 5, lines 17 – 19). In the Background of the Invention section, Thomas discloses, "...the wheels are to be stored or shipped with bearings in place around the central hub of the wheel" (col. 1, lines 23 – 25). Thomas also laments the "long-standing need for some form of protective covering for aircraft wheel assemblies which ... lessens the risk of mechanical damage and loss" (col. 1, lines 34 – 37), indicating that the protective covering of the invention is not simply designed for organized storage of the tire rubber, but also to protect other components of the wheel assembly, such as the rim and the bearings (col. 1, lines 31 – 34).

Applicants' claimed invention, the tire storage system 100, by contrast, is intended to facilitate storage of tires, not wheel assemblies. Typically, such storage may be needed after the tires are no longer being used, although the tire storage system 100 may as easily be used with new tires. Applicants' background section includes information about how problematic tire disposal and storage may be. Considerations such as fire hazard, mosquito breeding, and the presence of vermin and snakes are taken into account in the design of the tire storage system 100.

Figure 3 shows a cutaway side view of the tire storage system 100. The spacer 40 is shown disposed above the head portion 52 of the lower tire cap 50B. Together, the spacer 40 and the head portion 52 occupy the space that would be occupied by a rim and hub of a wheel assembly. The tire storage system 100 is not used on a wheel assembly, including rim and hub, but on the tire (rubber) alone. The amendment to claim 1 reflects this distinction over the Thomas reference.

Further, amended claim 1 recites, "the spacer and the head portion of the first tire cap substantially fill the opening of the tire." This recitation is reflected in Figure 3. As the rim of a wheel assembly will keep the hollow inside 28 sealed off so as to maintain inflation pressure in the tire, the spacer 40 and the head portion 52 of the lower tire cap 50B seal off the hollow inside 28 of the tire 30 from access by mosquitoes, which, in turn, mitigate the attraction of vermin and snakes to the tire storage site. For at least these reasons, Applicants' amended claim 1 is not obvious over Thomas.

Hulet discloses a "brake rotor stacking device" (title) for brake rotors that includes dual identical components. The Hulet device lacks several features found in Applicants' claimed invention. For one, the brake rotor stacking device lacks a spacer with a top portion, cylindrical body, and a connecting rod, as disclosed and claimed by Applicants. Further, while the "unitary plastic molded rotor stacking device" is formed so as to have hollow interiors 40, 41, for accommodating the shape of the brake rotors (Figures 4, 5, and 6), the rotor stacking device lacks a head portion that "fits through the opening" of the tire, as recited in amended claim 1. For at least these reasons, Applicants' claimed invention is non-obvious over Hulet.

Applicants respectfully disagree that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Thomas tire storage system to include two identical caps, as taught by Hulet. For one thing, the Thomas invention is designed with the wheel assembly, including the rim and hub, in mind. Thus, the design of the upper main member 14 includes a concave wall portion 36 that is unlike the concave wall portion 56 of the lower main member 16. Although Thomas discloses that the concave wall portions 36 and 56 may assume a number of different shapes, Thomas specifically discloses, "the concave portion of the lower cover extends radially farther than does the concave portion of the upper cover" (col. 5, lines 51 – 53). This is perhaps due to the fact that the shapes and protrusions of the hub and rim are considerations

for the design of Thomas, considerations that are irrelevant to the design of Applicants' claimed invention. Since symmetry of design of the upper main member 14 and the lower protecting member 16 are specifically avoided, as taught by Thomas, one of ordinary skill in the art would not likely be drawn to the symmetrical stacking devices 30 of Hulet.

Further, one looking at the Hulet invention would not be drawn to use the features of the Thomas invention. The Hulet invention fails to cover both sides of the brake rotor, but relies on a lower stacking device 30 to cover a bottom portion of the brake rotor, while a second stacking device 30 covers the top portion of the brake rotor. Thomas uses two distinct elements, a lower protecting member 16 and an upper main member 14 to protect the wheel assembly. Further, one invention pertains to brake rotors while the other pertains to wheel assemblies. Neither Hulet nor Thomas disclose, teach, or suggest the use of a spacer, as claimed in amended claim 1, to fill the space normally occupied by the rim and hub of the wheel assembly.

All remaining claims depend from claim 1. Because claim 1 is non-obvious over Thomas in view of Hulet, all dependent claims are likewise non-obvious.

Request for Interview with Examiner

Applicants' representative respectfully requests an opportunity to discuss this matter further with the Examiner, in an effort to get the case in a condition for allowance. Applicants' representative will contact the examiner during the week of April 17 – 21.

Conclusion

For at least the reasons given above, Applicants' amended claims are non-obvious over the cited art. Applicants respectfully requests allowance of all claims.

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Respectfully Submitted,

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Date



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